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09/249,463	02/12/1999	TETSUYA HIZUKA	P98.2690	9962

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EXAMINER

TRAN, NHAN T

ART UNIT PAPER NUMBER

2615

DATE MAILED: 07/29/2003

14

Please find below and/or attached an Office communication concerning this application or proceeding.

Q1

Office Action Summary

Application No.

09/249,463

Applicant(s)

IIZUKA, TETSUYA

Examiner

Nhan T. Tran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 May 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 09 May 2003 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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DETAILED ACTION

Drawings

The proposed drawing correction and/or the proposed substitute sheets of drawings, filed on 5/9/2003 have been approved. A proper drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The correction to the drawings will not be held in abeyance.

Response to Arguments

Applicant's arguments filed 5/9/2003 have been fully considered but they are not persuasive.

On page 5 of the Amendment, the Applicant asserts that the prior art of record does not teach or suggest the techniques for selectively mixing and reading out the image information output from imaging device, and further on page 6, the Applicant concludes, "There is no teaching or suggestion regarding the multiple resolution technique as now claimed."

In response, the Examiner respectfully disagrees with the Applicant. As stated by the Examiner in the First Office Action, it is clear that Ishigami teaches the techniques for selectively mixing and reading out the image signal charges in the horizontal register (see Figs. 12A-C; col. 14, lines 20-25 & line 59 to col. 15, line 9) to provide multiple resolution, e.g., low resolution image that is presented by interlaced signal (S_{IL}) is provided on a monitor (78) and

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high resolution image that is presented by non-interlaced signal (S_{NIL}) is recorded into a memory device (72) through a switching circuit (74) as shown in Fig. 14, col. 17, lines 11-50 & col. 18, lines 30-33 & 50-55.

In view of the above, the Examiner believes that the broad interpretation of the present claimed invention does, in fact, read on the cited references at least for the reasons discussed above and as stated in the following Office Action.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 2 recites the limitation "said one row" in line 3 of claim 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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Claims 1 - 4 and 6 - 9 are rejected under 35 U.S.C. 102(e) as being anticipated by Ishigami (US 6,198,507).

Regarding claim 1, Ishigami discloses a method of driving a solid-imaging device comprising the steps of:

mixing signal charges of pixels distant from each other in the horizontal direction transferred to a horizontal register from a vertical register within the horizontal register (see fig. 12A-C; col. 14, lines 20-25 & line 59 to col. 15, line 9 wherein signal charges of same color, i.e., Red, output from different lines/columns are mixed with each other in the horizontal register 4); and

transferring the mixed signal charge in the horizontal direction (see fig. 12A-C; col. 15, lines 21-24).

Regarding claim 2, Ishigami also clearly discloses that after the signal charges of pixels distant from each other on said one row are separately transferred from the vertical register to the horizontal register (see col. 14, lines 38-40), one signal charge is transferred to the horizontal register, said one signal charge is transferred within the horizontal register and the other signal charge is transferred to the horizontal register, in which the signal charges are mixed (see fig. 12A-C; col. 14, line 52 – col. 15, line 15).

Regarding claim 3, when signal charges of pixels distant from each other said on one row are transferred from the vertical register to the horizontal register, the signal charges are transferred at every the vertical register (see Figs. 12A-C; col. 14, lines 46-58).

Regarding claim 4, Ishigami further clearly shows that the pixel has a color filter thereon and pixels distant from each other on said one row are same in color (see figs. 7 & 12; col. 14, lines 52-53).

Regarding claim 6, Ishigami discloses a camera comprising a solid-state imaging device which has a two-dimensional pixel array provided with a photo-electric conversion unit for photo-electric converting incident light to a signal charge and a vertical register for transferring the signal charge or a vertical register having a photo-electric conversion function for transferring a signal charge and a horizontal register for receiving and transferring the signal charge transferred by the vertical register (see claim 1 for the accommodation of this limitation), the camera operating in a first mode (interlaced mode – S_{IL}) in which signal charge of pixels distant from each other in the horizontal direction are transferred from the vertical register and to the horizontal register are mixed within the horizontal register, the mixed signal charge is transferred in a horizontal direction and output (see fig. 12A-C, col. 14, lines 20-25 & 51-67 to col. 15, lines 1-15), and the camera operating in a second mode (noninterlaced mode – S_{NIL}) in which the register charges are separately transferred in a horizontal direction as a signal charge of each pixel without being mixed within the horizontal register, the first and second modes

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being switchable (see fig. 12-14; col. 17, lines 11-50 wherein the noninterlaced signal presents the signal charge of each pixel without being mixed).

Regarding claim 7, the claimed limitations are accommodated with respect to claim 2.

Regarding claim 8, the claimed limitations are accommodated with respect to claim 3. Additionally, Ishigami shows that the signal charges are transferred at every vertical register of adjacent constant columns (Figs. 12A-C; col. 14, lines 34-57).

Regarding claim 9, the claimed limitations are accommodated with respect to claim 4.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5 & 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishigami (US 6,198,507) in view of Takahashi et al. (US 6,288,744).

Regarding claim 5, Ishigami discloses a solid-state imaging element having a photo-electric conversion means (1) for photo-electric converting an incident light to a signal charge in a vertical direction and a horizontal register (4) for receiving and transferring the signal charge transferred by the vertical transferring means (2) in a horizontal direction, comprising a transfer gate unit (VH1, VH2) between the vertical transferring and horizontal register, and a transfer of electrode of a first (ϕ VH1) and a second phase (ϕ VH2) of the transfer gate unit are disposed at every set of prescribed column(s) of the vertical transferring means wherein pixels corresponding to each set of prescribed column(s) of the vertical transferring means have the same color arrangement (see Figs. 5, col. 11, lines 13-35 & Figs. 12A-C wherein every set of prescribe column(s) of G have the same color arrangement of Green color).

Ishigami does not explicitly disclose that the transfer electrode of a first and a second phase (shared shift registers) of transfer gate unit are disposed alternately at every set of prescribed column(s) of the vertical transferring means. However, Takahashi et al. teach that such shared shift registers (133, 134) are implemented in solid-state imaging device to enable the information charges in the channel regions of the vertical registers on different columns to be made different from each other in a direction along the vertical shift registers (see fig. 8; col. 11, lines 43-53).

Therefore it would have been obvious to one of ordinary skill in the art to implement the shared shift registers as taught by Takahashi et al. in solid-state imaging device disclosed by Ishigami to enable the information charges in the channel regions of the vertical registers on different columns to be made different from each other in a direction along the vertical shift registers.

Regarding claim 10, the claimed limitations are accommodated with respect to claim 5.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nhan T. Tran whose telephone number is (703) 605-4246. The examiner can normally be reached on Monday - Thursday, 8:00am - 6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew B Christensen can be reached on (703) 308-9644. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

NT.
July 16, 2003



ANDREW CHRISTENSEN
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